Summary of Technical Sessions

Monday 10/17/2005		
8:00 – 10:30	Session 1: Line Profile Analysis (Invited)	
10:50-12:10	Session 2a: Deformation of Cubic Structures (Contributed)	Session 2b: Residual Stresses/Surface Treatment (Contributed)
1:30-3:30	Session 3: In-Situ Deformation Studies (Invited)	
3:50-5:30	Session 4a: Deformation of Hexagonal Structures (Contributed)	Session 4b: Advanced Strain Scanning Instrumentation (Contributed)
6:00-9:00	Poster Session and Reception	

Tuesday 10/18/2005		
8:00 – 10:30	Session 5: Composites and Interfaces (Invited)	
10:50-12:10	Session 6a: Biological Applications (Contributed)	Session 6b: Residual Stresses /Quenching and Aging (Contributed)
1:30-3:30	Session 7: Small Length Scale and Biological Applications (Invited)	
3:50-5:30	Session 8a: Deformation of Composite Materials (Contributed)	Session 8b: Residual Stresses/Welding (Contributed)
Conference Dinner at Rancho de Chimayo		

Wednesday 10/19/2005		
8:00 – 10:30	Session 9: Phase Transformation and Twin Reorientation (Invited)	
10:50-12:10	Session 10a: Shape Memory and Phase Transformation (Contributed)	Session 10b: Residual Stresses In Multiphase Systems (Contributed)
1:30-3:30	Session 11: Neutron Diffraction Strain Scanning (Invited)	
3:50-5:15	Session 12a: Modeling and Software (Contributed)	Session 12b: Residual Stress/General (Contributed)
5:30	Summary and Closing Remarks	

Thursday 10/20/2005	
8:00 – 12:00	ANSWER (IMI) Business Meeting
8:00 – 5:00	VAMAS TWA-20 Meeting (Synchrotron Standard)
	Tour of LANSCE

Monday

8:00	P. Follansbee Los Alamos National Lab	Welcome
8:10	L. Conradson Los Alamos National Lab	Logistics

Plenary Lecture

8:20	C. Noyan Columbia University	Classification of Residual Stresses Measured by Diffraction Techniques

Session 1: Line Profile Analysis (Invited)
Chair: Paul Dawson

9:00	T. Unger Eötvös University	Microstrains as Revealed By X-Ray Line Profiles
9:30	K. Wierzbanowski AGH University of Science and Technology	Second Order Residual Stress, Dislocation Density and Recrystalization Process
10:00	E. Ustundag Iowa State University	Dynamical Diffraction Effects On Peak Profile and Position In Time-of-Flight Neutron Diffraction
10:30		Break

Session 2a: Deformation of Cubic Structures (Contributed)
Chair: Hahn Choo

10:50	C. Braham Ecole Nationale Supérieure d'Arts et Métiers	Influence of Nitrogen Content and Residual Stresses on Mechanical Properties of Duplex Stainless Steels Studied by X-Ray and Neutron Diffraction
11:10	Y. Taran FLNP, Joint Institute for Nuclear Research	Fatigue Degradation of Austenitic Stainless Steel AISI 321 by Neutron Diffraction Stress Analysis

11:30	T. Buslaps TU Wien,	Thermal Fatigue and Thermomechanical Strength Study of OFHC Copper and Gildcop
11:50	H. Li University of Tennessee	In-Site Study of Intergranular Strain Evolution in Nanocrystalline Ni Alloy

Session 2b: Residual Stresses/Surface Treatment (Contributed)
Chair: Cam Hubbard

10:50	K. Suzuki Niigata University	Measurement of Residual Stress Distributions in Oxidized Thermal Barrier Coatings on Curved Substrate Using Hard Synchrotron X-Ray
11:10	P. Fogarassy University of Reims	Finite Element Modeling of Peen-Forming Deformations
11:30	A. Evans University of Manchester	Characterization of Laser Peening Residual Stresses by Synchrotron Diffraction and Contour Method
11:50	T. Pirling Institut Laue-Langevin	Modelling of the Instrumental Effect Contributing to Diffraction Peak Broadening in Laser Shock Peened Ti64
12:10		Lunch

Session 3: In-Situ Deformation Studies (Invited)
Chair: Anke Pyzalla

1:30	Y. Wang University of Chicago	Measuring Mechanical Properties Under High Pressure and Temperature Using the D-DIA: Instrumentation, Methodology, and Applications
2:00	Y. Tomota Ibaraki University	Multi-Scaled Internal Stresses Formed During Plastic Deforming in Pearlite Steels
2:30	X. Wang Spallation Neutron Source	In-Situ Study of Fatigue Behaviors by Neutron Diffraction
3:00	Hahn Choo University of Tennessee	Intergranular Strain Evolution During Creep Deformation

3:30		Break

Session 4a: Deformation of Hexagonal Structures (Contributed)
Chair: Don Brown

3:50	E. Brown Los Alamos National Lab	In-Situ Measurement of Internal Strain in Polytetrafluoroethylene (PTFE) by Neutron Diffraction
4:10	C. Tomé Los Alamos National Lab	Role of Twinning in the Hardening Response of Zirconium
4:30	R. Holt Queen's University	Study of In-Situ Deformation of Textured Zircaloy2 by Neutron Diffraction
4:50	S. Vogel Los Alamos National Lab	Deformation Twinning in Zirconium Under Combined Uniaxial and Hydrostatic Stress Fields
5:10	S. Agnew University of Virginia	Neutron Diffraction Measurement of Internal Stress Development During Elevated Temperature Deformation of a Magnesium Alloy

Session 4b: Advanced Strain Scanning Instrumentation (Contributed)
Chair: Aaron Krawitz

3:50	R. Martins GKSS Research Centre	HARWI II: GKSS New High Energy Beamline at HASYLAB/DESY for Bulk Strain Mapping
4:10	A. Steuwer ESRF-ILL	The High Resolution Determination of Residual Stresses Using Energy Dispersive X-Ray Diffraction
4:30	G. Bruno Manchester University	The Performance of SALSA, the New Generation Strain Scanner at the ILL
4:50	T. Pirling Institut Laue-Langevin	A Stewart Platform for Strain Mapping Instrumentation

Monday

5:10	C. Hubbard Oak Ridge National Lab	The Second Generation ORNL Neutron Residual Stress Mapping Facility – The First Few Months of Measurement
5:30		Adjourn
6:00 – 9:00		**Poster Session**

Tuesday

8:00	C. Huber National Science Foundation	MRI Proposals

Plenary Lecture

8:20	P. Withers Manchester University	Crack Bridging, Under Fatigue Growth in Ti/Sic Fibre Composites

Session 5: Composites and Interfaces (Invited)
Chair: Bjorn Clausen

9:00	A. Pyzalla Technische Universität Wien	In-Situ Investigation of Creep Damage Evolution in Multiphase Alloys
9:30	P. Dawson Cornell University	Better Understanding of Load Sharing in Polycrystals Through Coordinated In-Situ Experiments and FE Simulations
10:00	M. Daymond Queen's University	Variation in Loading Behaviour of a Nickel Super Alloy with Temperature
10:30		Break

Session 6a: Biological Applications (Contributed)
Chair: Alain Lodini

10:50	P. Millet University of Reims	Development of a New High Centrifugal Rate Casting Machine : Stress Evaluation in Titanium Samples by Finite Elements Analysis and by Neutron Diffraction Method

11:10	A. Benmarouane UFR Sciences Exactes et Naturelles	Study of the Arrangement of Hydroxyapatite Crystallites at the Interface with Implant by Synchrotron Radiation
11:30	A. Mehta Stanford University	Understanding Deformation and Failure of NiTi Endovascular Stents Via X-Ray Microdiffraction
11:50	T. Ntsoane University of Cape Town	Residual Stress Analysis of Hydroxyapatite Coatings Using Synchrotron Radiation

Session 6b: Residual Stresses/Quenching and Aging (Contributed)
Chair: Poulsen

10:50	M. Preuss Manchester Universtity	The Effect of Cooling Rate and Aging on the Coherency Misfit in Advanced Polycrystalline Nickel-Base Superalloys
11:10	P. Staron GKSS Forschungszentrum,	Characterization of Residual Stresses in IN718 Turbine Discs by Neutron Diffraction and Finite Element Modeling
11:30	S. Jakani Laboratoire Léon Brillouin	Stored Energy and “In-Situ” Recrystallization Texture Study of Copper Wires by Neutron Diffraction
11:50	F. Tang Oak Ridge National Lab	Neutron Diffraction Study of Intensive Quenching Effect on Residual Stresses
12:10		Lunch

Session 7: Small Length Scale and Biological Applications (Invited)
Chair: Cev Noyan

1:30	A. Lodini Université de Reims	Residual Stress and Texture Evaluation by Diffraction Techniques in Biomaterial Implants
2:00	J. Almer Argonne National Laboratory	Microstructure and Internal Strain Measurements in Bone Via High-Energy X-Rays

2:30	H. Poulson Risø National Laboratory	Measuring Strains in Grains, Sub-Grains, Glasses and Polymers
3:00	C. Murray IBM	Imaging Deformation in Strained Thin Film/ Substrate Systems Using X-Ray Microdiffraction
3:30		Break

Session 8a: Deformation of Composite Materials (Contributed)
Chair: Sean Agnew

3:50	D. Mari Ecole Polytechnique Fédérale de Lausanne	Load Sharing in WC-Co Under Uniaxial Tension Between from 1050 to 1200 Kelvin
4:10	J. Paggett University of Missouri	Strain Response and Residual Stresses WC-Ni Composites Under Compressive Load
4:30	T. Saleh University of Tennessee	In-Situ Neutron and X-Ray Diffraction Studies of Carbide-Matrix Interactions in Hayne 230 Nickel Based Superalloy
5:10	S. Lee CalTech University	Phase Evolution and Deformation of In-Situ Reinforced Bulk Metallic Glass Composites

Session 8b: Residual Stresses/Welding (Contributed)
Chair: Oliver Kirstien

3:50	G. Johnson University of Manchester	Investigating Residual Stresses in Inertia Friction Welds Using a Combination of Neutron Diffraction and the Contour Method
4:10	P. Frankel University of Manchester	Residual Stresses in Linear Friction Welded Ti 6-4 Using Synchrotron Diffraction and the Contour Method
4:30	W. Woo University of Tennessee	Residual Stresses in a Friction Stir Processed AZ-31B Magnesium Alloy

Tuesday

4:50	T. Holden Northern Stress Technologies	Comparison Between Single Peak And Rietveld Analysis Of A Zircaloy-4 Weldment
5:10	M. Ripley Materials and Engineering Science, ANSTO	The Effects Of Restraint and Post-Weld Heat Treatment on Residual Stress Distribution in a Bead on Plate Weld
5:30		Adjourn

Wednesday

Session 9: Phase Transformation and Twin Reorientation (Invited)
Chair: Sven Vogel

8:00	E. Oliver ISIS Facility, RAL	Neutron Diffraction for the Study of Shape Memory Materials
8:30	R. Vaidyanathan Universtiy of Central Florida	Low Temperature Deformation Studies in Shape Memory Alloys
9:00	B. Clausen Los Alamos National Lab	Elastic-Plastic Self-Consistent Model With Revised Twinning Formulation
9:30	R. Wenk University of California, Berkeley	In-Situ Observation of Texture Changes During Phase Transformations, Investigated by Neutron and Synchrotron X-Ray Diffraction
10:00		Break

Session 10a: Shape Memory and Phase Transformation (Contributed)
Chair: Raj Vaidyanathan

10:20	Y. Wang Northeastern University	Evolution of Texture and Stress in the Ni-Mn-Ga Ferromagnetic Shape-Memory Alloy
10:40	M. Motahari Iowa State University	Self-Consistent Modeling of Ferroelectrics
11:00	S. Kabra University of Tennessee	In-Situ Neutron Diffraction Study of Pseudo-Elasticity in Single Crystal Fe3Al

11:20	G. Kannarpady University of Arkansas at Little Rock	In-Situ Study Of Stress-Induced Phase Transformation in Cu-13.1 Al-4.0 (Wt. %) Single Crystals Shape Memory Alloy Using Neutron Diffraction
11:40	M. Benson University of Tennessee	Investigation of the Stress Orientation Distribution Function of a Cyclically-Deformed Cobalt Superalloy

Session 10b: Residual Stresses In Multiphase Systems (Contributed)
Chair: Ersan Ustundag

10:20	K. Tanaka Nagoya University	Internal Stresses in Solid Oxide Fuel Cell During Reduction-Oxidation Cycle Measured In-Situ With Synchrotron X-Rays
10:40	A Tamanov JINR, Dubna	Neutron Diffraction Study of Residual Stresses Gradient in a Bimetallic Stainless Steel-Zirconium Adapter
11:00	A. Frischbutter GeoForschungsZentrum	Intracrystalline Strain and Texture of an Anhydrite-Dolomite Composite (Zuckerdolimit), Measured Using Neutron Time Of-Flight Diffraction at the Pulsed Reactor IBR-2 (Dubna)
11:20	Y. Akiniwa Nagoya University	Measurement of Fiber Bridging Stress of Fatigue Cracks In SCS-6/Ti-15-3 Composite Using Synchrotron Radiation
11:40	F. Xu Queen's University	Investigation of Residual Stress in a Bent Cu-Ti Buss Bar by Neutron Diffraction and Finite Element Modeling
12:00		Lunch

Session 11: Neutron Diffraction Strain Scanning (Invited)
Chair: Mark Bourke

1:15	Oliver Kirstein Bragg Institute, ANSTO	Strain Scanning in Australia: Instruments, Benchmarks and Recent Experiments
1:45	Andrew Ventner Necsa Limited	Neutron Diffraction Study of Laser Bent Samples

2:15	Neil James University of Plymouth	Neutron Diffraction Strain Scanning in High Strength Steel Welds – A Tool to Aid in Life Prediction
2:45	A. Payzant Oak Ridge National Lab	TBA
3:15		Break

Session 12a: Modeling and Software (Contributed)
Chair: Mark Daymond

3:35	C. Aydiner Los Alamos National Lab	Quenching Stresses in Bulk Metallic Glasses: Measurement and Modelling
3:55	M. Ouali University of Reims	Effects of Microcavities Shapes Changes on Mechanical Stresses Multi-Scales Modeling Neutronic Diffraction Results Comparison
4:15	E. Ustundag Iowa State University	Distributed Analysis of Engineering Neutron Diffraction Data
4:35	D. Balzar University of Denver	Residual Stress Determination by the Spherical Harmonics Model
4:55	M. Yaman University of Cape Town	Visualization of Stress Tensors Determined by Neutron Diffraction

Session 12b: Residual Stress/General (Contributed)
Chair: Ed Oliver

3:35	M. Harting University of Cape Town	Synchrotron Radiation Diffraction Studies of Residual Strain in Hydrogenated Amorphous Silicon
3:55	Y. Sakaida Shizuoka University	In-Situ Measurement Of Grain Bridging Stress Distribution Near Crack Tip In Alumina Using Synchrotron Micro X-Ray Beam

4:15	S. Pratihar Open University	Non-destructive Determination of the 3D Residual Stress in a AA7050 Upper Wing Skin Stringer Panel Using Neutron Diffraction
4:35	J. Tan Open University	Residual Stress Redistribution in Fatigue Aged Cold Worked Holes
4:55	M. Fox University of Manchester	Measurement of Residual Stresses in Electromagnetically Installed Rivets by Neutron and Synchrotron Diffraction
5:15	T. Holden Northern Stress Technologies	Wrap Up and Closing Remarks

Poster Session: Monday, 6:00-9:00 PM

K. Tanaka Nagoya University	In-Situ Measurement of Internal Stresses in Copper Thin Films during Thermal Cycling by Using Synchrotron X-rays
M. Nicoara University of Reims	Effect of Heat Treatment Parameters on the Proportion of Retained Austenite and Internal Stress State of Austempered Ductile Iron
T. Shobu Japan Atomic Energy Research Institute	Correction of Surface Aberration in Strain Scanning Method
S. Jakani Laboratoire Léon Brillouin	Neutron Diffraction Study of Hydroxyapatite Crystallites at Bone Plant
D. Daas Université de Annaba	Evaluation of Mechanical Stresses in Aluminum Alloyed Rod for Motorcycles Numberical Modelisation and X-ray Diffraction Validation
H. Suzuki Japan Atomic Energy Research Institute	Measurement of Residual Stresses on a Unidirectional Solidified. A1203/YAG Using Synchrotron and Neutron Diffraction
H. Suzuki Japan Atomic Energy Research Institute	Development of the Engineering Diffractometer at J-PARC
K. An Oak Ridge National Laboratory	Instrument Control, Data Collection and Data Real-Time Analysis Software for The ORNL Neutron Residual Stress Facility
A. Payzant Oak Ridge National Laboratory	The Effect of Welding Process on the Residual Stress Distribution in Welded Cruciform Parts
S. Vogel Los Alamos National Laboratory	In-Situ Deformation Studies Using Hippo/Crates

K. Wierzbanowski AGH University of Science and Technology	Variation of Residual Stresses During Cross-Rolling
S. Vogel Los Alamos National Laboratory	Texture Component Resolution of the HIPPO Neutron Diffractometer
E. Ustundag Iowa State University	Multiscale Study of Ferroelectrics with Advanced Diffraction Techniques
E. Ustundag Iowa State University	High Energy X-Ray Diffraction Investigation of Ferroelectric Constitutive Behavior
E. Ustundag Iowa State University	A Comparison of X-ray Microdiffraction and Cohernt Gradient Sensing in Measuring Discontinuous Curvatures in Thin Film – Substrate Systems
A. Pyzalla Technische Universität Wien	Deformation Mechanisms and Residual Stress Generation During Wear of Austenitic Steels at Cryogenic Temperatures
G. Bruno Manchester University	Dependence of the Eshelby Model Predictions on the Microstructure of Metal Matrix Composites
S. Scmalo University of Central Florida	Neutron Diffraction Measurements During Loading at 90 K in NiTiFe Shape Memory Alloys. Part I: Deformation Mechanisms
V. Krishnan University of Central Florida	Neutron Diffraction Measurements During Loading at 90 K in NiTiFe Shape Memory Alloys. Part II: Constrained Recovery
T. Saleh University of Tennessee	Temperature Dependent Deformation Of Depleted Uranium.
T. Sisneros Los Alamos National Laboratory	In-Situ Neutron Diffraction Measurements At Temperature And Stress Using Smarts
C. Hubbard Oak Ridge National Laboratory	NRSF2 Load Frame: Design, Control and Testing